CLAIMS

1. A method of power control comprising:
calculating a target power level;
detecting wind-up of the target power level; and
modifying the target power level when wind-up is detected.

2. The method of claim 1, wherein the target power level is the signal-to-interference ratio (SIR).

3. The method of claim 1, wherein detecting wind-up comprises comparing the target power level with a function of a measured power level.

4. The method of claim 3, wherein the function comprises filtering the measured power level.

5. The method of claim 1, wherein detecting wind-up comprises measuring an error rate over a pre-determined period and comparing the error rate with an error rate threshold.

6. The method of claim 1, wherein detecting wind-up comprises measuring closed-loop power control commands generated in response to the target power level over a pre-determined time interval and comparing the number of increase commands with a pre-determined threshold.

7. The method of claim 1, wherein detecting wind-up comprises measuring the downlink traffic to pilot ratio.

8. The method of claim 7, further comprising dividing the current downlink traffic to pilot ratio by the previous downlink to traffic ratio and comparing the result with a pre-determined threshold.

9. The method of claim 1, wherein modifying the target power level comprises limiting the target power level as a function of the received power level.

10. The method of claim 1, wherein modifying the target power level comprises setting the target power level to a pre-determined level.

11. The method of claim 1, wherein modifying the target power level comprises:

decreasing the target power level by a first step size when an error rate is above a threshold; and

decreasing the target power level by a second step size when the error rate is below the threshold.

12. The method of claim 1, wherein:

calculating a target power level comprises calculating the target power level in response to a first error rate; and

modifying the target power level comprises modifying the target power level in response to a second error rate.

13. The method of claim 1, wherein modifying the target power level comprises:

limiting the number of target power level increases to a pre-determined maximum within a period of pre-determined length.

14 The method of claim 1, further comprising detecting unwinding of the target power level.

15. The method of claim 14, wherein detecting unwinding comprises comparing the target power level with a function of a measured power level.

16. The method of claim 14, wherein detecting unwinding comprises measuring an error rate over a pre-determined period and comparing the error rate with an error rate threshold.

17. The method of claim 14, wherein detecting unwinding comprises measuring closed-loop power control commands generated in response to the target power level over a pre-determined time interval and comparing the number of decrease commands with a pre-determined threshold.

18. The method of claim 14, wherein detecting wind-up comprises measuring the downlink traffic to pilot ratio.

19. A method of power control comprising:

calculating a target power level; and

limiting the target power level to a received power level plus a pre-determined power margin.

20. A wireless communication device, operable with a second wireless communication device to perform closed-loop power control, comprising:

a wind-up detector for detecting wind-up of a target power level; and

an outer power control loop for generating a target power level and modifying it in response to wind-up detection in the wind-up detector.

21. The wireless communication device of claim 20, wherein the wind-up detector further detects unwinding of the target power level.

22. The wireless communication device of claim 20, further comprising an error rate calculator for generating error rates and delivering the error rates to the outer power control loop for use in target power level generation.

23. The wireless communication device of claim 20, further comprising an inner power control loop for generating power control commands for delivery to the second wireless communication device in response to the target power level.

24. The wireless communication device of claim 20, further comprising a receiver for estimating a received power level, the received power level delivered to the outer power control loop for use in target power level generation.

25 The wireless communication device of claim 24, wherein the wireless communication device is a mobile station.

26 The wireless communication device of claim 24, wherein the wireless communication device is a base station.

27. A communication system comprising:
a wind-up detector for detecting wind-up of a target power level; and
an outer power control loop for generating a target power level and modifying it in response to wind-up detection in the wind-up detector.

28. A wireless communication device comprising:
means for calculating a target power level;
means for detecting wind-up of the target power level; and
means for modifying the target power level when wind-up is detected.

29. A wireless communication device comprising:
means for calculating a target power level; and
means for limiting the target power level to a received power level plus a pre-determined power margin.

30. Processor readable media operable to perform the following steps:
calculating a target power level;
detecting wind-up of the target power level; and
modifying the target power level when wind-up is detected.

31. Processor readable media operable to perform the following steps:
calculating a target power level; and
limiting the target power level to a received power level plus a pre-determined power margin.